

# MEMORANDUM

From Steve Hahn/KH  
To Chris Dayton/KH  
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Ann Sieben/KH  
Date January 11 1996  
Subject Sitewide Groundwater Strategy--Review Comments



I looked briefly at the draft report dated December 1995 and have the following comments

**Groundwater plumes** shown in Figures 4-1 and 4-1 are not identified and there appears to be only a casual relationship these figures and the plume descriptions presented in Section 4 2 of the text and the plume rankings presented in Section 4-3 of the text. For example there are four green shaded areas on Figure 4 2 eight plume descriptions presented in Section 4-2 and ten plume rankings in Section 4 3

Furthermore there appears to be a disconnect between the plumes described in Section 4 of the report, and the description of groundwater flow at the site presented in Section 2 (i e 'Groundwater in the UHSU preferentially flows along pre-existing channels cut into bedrock

To make sense of all this I would expect that Section 2 would include a map showing the delineating of various groundwater watershed boundaries at the site as well as the direction(s) of groundwater flow within those watershed boundaries This information when overlain on by the shaded areas presented in Figure 4-1 would produce a discrete number of plumes that can easily identified, labeled and ranked

Section 1 presents the Site Vision and proposed future land uses for various areas of the site Trouble is I don t see the connection between this information and the proposed Groundwater Strategy. For example you don t use 'intended land use' as a criteria for ranking groundwater plumes in Section 4 3

Actually the proposed Site Vision confuses the whole issue of 'what to do with contaminated groundwater' Site Vision says (to me) 'None of the land uses proposed for the site would preclude the future use of groundwater' Groundwater Strategy says (to me) 'Use of onsite groundwater will not be allowed' Thus the Groundwater Strategy appears to be inconsistent with the Site Vision

As an added complication, neither Figure 1 1 nor the text provide definition of 'onsite' (where groundwater use is prohibited) versus 'offsite' (where groundwater use is allowed)

Section 2 describes the bedrock unit at the site as both an aquifer (i e the LHSU with sufficient water to support limited house hold use in selected locations ) and an aquitard (i e 'the LSHU effectively acts as a hydraulic barrier to downward flow' ) Although I d like to believe and proceed forward with the 'aquitard' interpretation, I find it hard to believe that somewhere/somewhat there isn t some kind of hydraulic connection between

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the LHSU at Rock Flats and the domestic well users in the immediate vicinity of Rocky Flats

Thus I suggest that one component of the Groundwater Strategy should be 'What are we going to do with contaminants in the LSHU?' Think about it, the 'Outer Buffer Zone' where unrestricted land use and (presumably) groundwater use is allowed is situated only a stones throw' from the groundwater plumes shown on Figure 4-1

Section 3 introduces Tier I and Tier II action levels. This whole presentation is really confusing. There are no figures or tables in Appendix C and no clear description in the text of what is being proposed. I can't tell if Tier I/Tier II corresponds with two lists of wells or two shaded areas on a map. In either case one would expect a logic link between Figure 1.1 (i.e. the Site Vision) and Figure C ?? (i.e. the map delineating Tier I/Tier II areas). There should also be discussion in the text presenting this relationship.

I think I understand what is meant by a Tier II area/well i.e. a 10 \* MCL exceedance would trigger additional monitoring and (potentially) a remedial action. I don't understand at all what is meant by a Tier I area/well. As presented, a 100 \* MCL exceedance would trigger an evaluation to determine if remedial action is necessary. To me this provides no guidance/direction whatsoever. We're currently in the evaluation mode and the Groundwater Strategy should attempt to lead us out of the dark and into the light. How is anyone supposed to assess if the remedial actions described in Section 7 are adequate, necessary and appropriate?

Section 4 describes potential remedial technologies, identifies plumes and ranks them. I have a problem with the 'Groundwater Remediation' subsection. First, it seems inappropriate to be talking about 'how to remediate groundwater' when Section 3 fails to identify cleanup requirements -or even the need to take action. Second the *Assumptions* section proposes 1) source removal (presumably soils), 2) containment, and 3) passive barriers. It seems really strange that conventional technologies for VOAs in groundwater i.e. soil vapor extraction and 'pump and treat' are excluded. Third the proposed technology for OU7 (i.e. passive collection and treatment) has nothing to do with groundwater plume remediation. What we're doing at OU7 is an 18 month long temporary cleanup of a surface water seep. Nothing will be done to remediate the groundwater.

The Plume Ranking subsection is interesting. However it confuses the whole concept being proposed. Will we take action at a plume because one of the 'two-tier action levels' in Section 3.2 is exceeded, or will we take action at a plume because it ranks high on the priority list?

Section 6 is titled 'Conceptual Schedule' however not a single date is presented. It's probably more appropriate to call this section a 'Conceptual Sequence'.

If you believe the first sentence of this section the whole concept of 'two tier action levels' has no bearing on what gets done at the site. Furthermore I have little confidence that the actions identified will bring the site into compliance with those 'two tier action levels' (whatever they are).

Section 7 includes the sentence 'The following proposed conceptual actions would be the direct result of applying the action levels for groundwater remediation within the framework of the site vision. Really??' With no definition of what the action levels mean with no map of where Tier I and II areas are located with a conceptual schedule that uses priority ranking (not action levels) and (potential) disagreement as to appropriate

remedial technologies, I can't possibly imagine that there will be consensus on the list of proposed remedial actions presented

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